

Message

From: Lindstrom, Andrew [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=04BF7CF26AA44CE29763FBC1C1B2338E-LINDSTROM, ANDREW]
Sent: 12/11/2017 9:06:04 PM
To: Washington, John [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=fdc3e8ce9f1d45c4894881ff420ca104-Washington, John]
Subject: RE: Solvay - Isomer Chemistry Questions
Attachments: Baygi et al. 2017.pdf

John,

I think you're right on this.

By the way, have you seen this new paper?

This is really interesting and it may have bearing on some of this ongoing research.

Thank you,

Andy

From: Washington, John
Sent: Monday, December 11, 2017 7:38 AM
To: Bergman, Erica <Erica.Bergman@dep.nj.gov>; Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>; Strynar, Mark <Strynar.Mark@epa.gov>
Subject: RE: Solvay - Isomer Chemistry Questions

Hi Erica,

Regarding your question of whether linear PFNA might convert to branched-chain isomers of PFNA, I doubt it happened in any measureable amount under environmental conditions.

Concerning this idea, I started testing the stability of PFOA, a single -CF₂- shorter than PFNA, in soil about seven years now. About seven years ago, I started incubating unlabeled PFOA and ¹³C₈-PFOA in soil microcosms.

The idea of the labeled compound was that, assuming 1) PFOA degradation or any change would be slow and 2) any product of degradation or change might be more short-lived than PFOA, then any reaction products almost certainly would be very low in concentration, perhaps not much in excess of analytical noise. So, the presence of both unlabeled and fully labeled PFOA would necessitate that any candidate products of reaction would have to be present in both unlabeled and labeled isotopologues at roughly equal concentrations if they indeed were reaction products.

The soil microcosms were saturated so that the bottoms of the microcosms are ~anaerobic (limited by O₂ diffusion rate through water) and the surface is ~aerobic. This clearly doesn't cover all geochemical settings, but for the wide variety of soil minerals, rich organic-matter concentrations, and a range of redox states present in the microcosms, to date I haven't seen evidence of change to the PFOA.

I don't know what industrial processing might have occurred at Solvay, so I can't speak to whether there might have been some changes to linear PFNA during industrial processing at Solvay.

John

From: Bergman, Erica [<mailto:Erica.Bergman@dep.nj.gov>]

Sent: Wednesday, December 06, 2017 3:27 PM

To: Lindstrom, Andrew <Lindstrom.Andrew@epa.gov>; Strynar, Mark <Strynar.Mark@epa.gov>; Washington, John <Washington.John@epa.gov>

Subject: Solvay - Isomer Chemistry Questions

Mark, Andy and John,

Here is the first of two emails regarding questions on Solvay's PFNA isomer chemistry interpretations.

Solvay contracted Vista Analytical Laboratory to analyze the SURFLON products that they purchased and used in 1991 and 1998-1999 (See Tabulated SURFLON analysis attachment). Solvay's predecessor's used SURFLON from 1985-1991, which is not accounted for in the analysis.

Solvay's PFAS Investigation Report (attached) contains two sections that discuss their findings regarding analysis of groundwater for branched and linear chain PFNA and PFOA. They conclude that since SURFLON contains 100% linear isomer PFNA, any branched chain PFNA found in groundwater would be from another source.

Section 3.8 – Source Differentiation (pages 3-10 and 3-11)

Section 5.2.1 – Isomer Analysis (pages 5-4 through 5-7)

Can Solvay be certain in their above conclusion? Is this statement true but not entirely accurate (pg. 3-10) - "Once formed, the isomers themselves are stable so that a linear isomer does not degrade into a branched isomer, and vice versa"? For instance, is it possible that linear chain PFNA isomers could change to a branched structure by some other process other than degradation, i.e., geochemical conditions in the environment or during Solvay processing steps?

Let me know of others that may be able to assist, and feel free to forward.

Thank you,

Erica Bergman

New Jersey Department of Environmental Protection
Site Remediation Program – Bureau of Case Management
401 E. State Street - Mail Code 401-05F
P.O. Box 420
Trenton, NJ 08625-0420
erica.bergman@dep.nj.gov
609-292-7406